Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-55.   (canceled)

56.   (previously presented) A fiber node in a hybrid fiber-coax network (HFCN) located between an upstream facility and a plurality of cable modems, comprising:

a cable modem termination system (CMTS) comprising:

a transmitter to transmit data to the cable modems as downstream analog radio frequency (RF) signals over a plurality of downstream channels,

a receiver to receive upstream analog RF signals from the cable modems over a plurality of upstream channels and extract data from the upstream analog RF signals, and

a processor, connected to the transmitter and the receiver, to:

provide the data to the transmitter,

receive the extracted data from the receiver and send the extracted data to the upstream facility, and

dynamically allocate a downstream channel or an upstream channel during operation of the fiber node.

57.   (previously presented) The fiber node of claim 56, wherein the transmitter includes a plurality of modulators, where each of the modulators corresponds to one of the downstream channels.

58.   (previously presented) The fiber node of claim 56, wherein the receiver includes a plurality of demodulators, where each of the demodulators corresponds to one of the upstream channels.

59.   (previously presented) The fiber node of claim 56, wherein the CMTS is configured to communicate with the upstream facility via a packet network.

60.   (previously presented) The fiber node of claim 56, wherein the CMTS is configured to communicate data and control signals with the upstream facility via an Ethernet-compatible packet network.

61.   (previously presented) The fiber node of claim 56, wherein the CMTS is configured to compress and merge the extracted data from multiple ones of the cable modems before sending the extracted data to the upstream facility.

62.   (previously presented) The fiber node of claim 56, wherein the CMTS is configured to isolate multiple ones of the upstream channels, less than all of the upstream

channels, and combine the extracted data from the isolated upstream channels for transmission to the upstream facility.

63. (previously presented) The fiber node of claim 62, wherein the isolated upstream channels are unrelated in function or frequency.

64. (previously presented) The fiber node of claim 56, wherein the CMTS is configured to send data associated with one of the upstream channels to the upstream facility without extracting the data associated with the one upstream channel.

65. (previously presented) The fiber node of claim 64, wherein the CMTS is configured to transmit the data associated with the one upstream channel via a tunnel to the upstream facility.

66. (previously presented) The fiber node of claim 56, wherein the upstream facility is an upstream hub or an upstream head end.

67. (previously presented) The fiber node of claim 56, wherein CMTS is configured to determine that there is a problem associated with one of the upstream channels or one of the downstream channels.

68.   (previously presented) The fiber node of claim 67, wherein the CMTS is

further configured to scan an entire spectrum associated with the one upstream channel or

the one downstream channel in real time to identify a part of the spectrum that is free of

the problem.

69.   (previously presented) The fiber node of claim 67, wherein the CMTS is

further configured to resize the one upstream channel or the one downstream channel.

70.   (previously presented) The fiber node of claim 67, wherein the CMTS is

further configured to dynamically increase or decrease bandwidth associated with the one

upstream channel or the one downstream channel.

71.   (previously presented) The fiber node of claim 67, wherein the CMTS is

further configured to move the one upstream channel or the one downstream channel to a

new frequency.

72.   (previously presented) The fiber node of claim 67, wherein the CMTS is

further configured to allocate an additional upstream channel or an additional

downstream channel.

73.   (previously presented) The fiber node of claim 67, wherein the CMTS is

further configured to move one or more of the cable modems associated with the one

upstream channel or the one downstream channel to another one of the upstream channels

or another one of the downstream channels without registering the moved one or more

cable modems.

74.   (previously presented) A fiber node in a hybrid fiber-coax network

(HFCN) located between an upstream facility and a plurality of cable modems,

comprising:

a cable modem termination system (CMTS) comprising:

means for transmitting data to the cable modems as downstream analog

radio frequency (RF) signals over a plurality of downstream channels,

means for receiving upstream analog RF signals from the cable modems

over a plurality of upstream channels and extracting data from the upstream

analog RF signals, and

means for dynamically allocating a downstream channel or an upstream

channel during operation of the fiber node.

75.   (previously presented) The fiber node of claim 74, wherein the means for

transmitting data includes a plurality of modulators, where each of the modulators

corresponds to one of the downstream channels.

76.   (previously presented) The fiber node of claim 74, wherein the means for receiving upstream analog RF signals includes a plurality of demodulators, where each of the demodulators corresponds to one of the upstream channels.

77.   (previously presented) The fiber node of claim 74, wherein the CMTS further comprises means for communicating with the upstream facility via a packet network.

78.   (previously presented) The fiber node of claim 74, wherein the CMTS further comprises means for communicating data and control signals with the upstream facility via an Ethernet-compatible packet network.

79.   (previously presented) The fiber node of claim 74, wherein the CMTS further comprises:

means for compressing and merging the extracted data from multiple ones of the cable modems, and

means for sending the compressed and merged data to the upstream facility.

80.   (previously presented) The fiber node of claim 74, wherein the CMTS further comprises:

means for isolating multiple ones of the upstream channels, a number of the isolated upstream channels being less than all of the upstream channels, and

means for combining the extracted data from the isolated upstream channels for transmission to the upstream facility.

81.   (previously presented) The fiber node of claim 80, wherein the isolated upstream channels are unrelated in function or frequency.

82.   (previously presented) The fiber node of claim 74, wherein the CMTS further comprises means for sending data associated with one of the upstream channels to the upstream facility without extracting the data associated with the one upstream channel.

83.   (previously presented) The fiber node of claim 82, wherein the means for sending data associated with one of the upstream channels comprises means for transmitting the data associated with the one upstream channel via a tunnel to the upstream facility.

84.   (previously presented) The fiber node of claim 74, wherein the upstream facility is an upstream hub or an upstream head end.

85.   (currently amended) The fiber node of claim 74, wherein the CMTS further comprises means for determining that there is a problem associated with one of the upstream channels or one of the downstream channels.

86.   (previously presented) The fiber node of claim 85, wherein the CMTS further comprises means for scanning an entire spectrum associated with the one upstream channel or the one downstream channel in real time to identify a part of the spectrum that is free of the problem.

87.   (previously presented) The fiber node of claim 85, wherein the CMTS further comprises means for resizing the one upstream channel or the one downstream channel.

88.   (previously presented) The fiber node of claim 85, wherein the CMTS further comprises means for dynamically increasing or decreasing bandwidth associated with the one upstream channel or the one downstream channel.

89.   (previously presented) The fiber node of claim 85, wherein the CMTS further comprises means for moving the one upstream channel or the one downstream channel to a new frequency.

90.   (previously presented) The fiber node of claim 85, wherein the CMTS further comprises means for allocating an additional upstream channel or an additional downstream channel.

91.   (previously presented) The fiber node of claim 85, wherein the CMTS further comprises means for moving one or more of the cable modems associated with the one upstream channel or the one downstream channel to another one of the upstream channels or another one of the downstream channels without registering the moved one or more cable modems.

92.   (previously presented) A hybrid fiber-coax network, comprising:

a cable system head end; and

a plurality of fiber nodes connected between a plurality of cable modems and the cable system head end, each of the fiber nodes comprising:

a transmitter to transmit data to the cable modems over a plurality of downstream channels,

a receiver to receive upstream signals from the cable modems over a plurality of upstream channels and extract data from the upstream signals, and

a processor, connected to the transmitter and the receiver, to:

provide the data to the transmitter,

receive the extracted data from the receiver and send the extracted data to the cable system head end, and

dynamically assign or configure a downstream channel or an upstream channel during operation of the fiber node.